

-6-

Remarks

This application has been reviewed in light of the Final Office Action of January 4, 2007. Claims 1-18 and 21-22 are pending. Claims 2 and 11 are withdrawn from consideration, and claims 1, 3-10, and 12-18, and 21-22 are rejected. In response, the following remarks are submitted.

Ground 1. Claims 1, 3-7, 10, 12-16, and 21-22 are rejected under 35 USC 103 over admitted prior art [0002] in view of Beier U.S. Pub. 2001/0048019, Woodfield U.S. Pub. 2004/0089380, the ASM Handbook Volume 4, and the website of Titanium Metals Corporation found at www.timet.com/timetal6-4frame.html.

Inapplicability of "Prior Art" References

Admitted prior art [0002].

The "admitted prior art [0002]" does not legally qualify as prior art and may not be used in constructing the rejection. Only certain types of information qualify as "prior art" under 35 USC 103. Generally, the material in the Specification of the application under examination is not prior art. However, MPEP 2129 I and II provide an exception and define when a portion of the Specification may be used as prior art. MPEP 2129 II states:

"Where the specification identifies work done by another as 'prior art,' the subject matter so identified is treated as admitted prior art."

That is, anything from the Specification used as legal "prior art" in forming a rejection must be indicated in the specification to have been done "by another" and must be labeled or described as "prior art" in haec verba. This position is supported in the MPEP by a reference to In re Nomiya, "holding applicant's labeling of two figures in the application drawings as 'prior art' to be an admission that what was pictured was prior art relative to applicant's improvement."

The present Specification does not label or otherwise identify the material at para. [0002]-[0005] as "prior art." The material at para. [0002]-[0005] is not labeled or otherwise identified as either "work done by another" or "prior art." Accordingly, the material at para. [0002]-[0005] cannot be used as "prior art" under the provisions of MPEP 2129 II. Applicant

is not aware of any other provision of the MPEP that allows the use of “prior art” from the Specification. This reference must be withdrawn to conform to MPEP practice.

The Examiner addresses this issue in the Response to Arguments at pages 3-4 of the Final Office Action. The Response recognizes that the MPEP requires that the Specification label the material that is to be used as “prior art”, and apparently recognizes that the present Specification does not label anything as “prior art” because it does not seek to point out any location where Applicant has labeled anything in the Specification as “prior art.” The Examiner quotes the language and cases from MPEP 2129 I, all of which supports Applicant’s position. Nothing in the Response or elsewhere purports to identify a location at which Applicant identifies anything in the Specification as “prior art.” Because Applicant did not label anything in the Specification “prior art,” there can be no reliance on anything from the Specification as “prior art.”

One of the several problems with the attempted reliance on “admitted” prior art from the Specification that is not identified by the Applicant as “prior art” is that its scope cannot be determined with any reliability. The MPEP also imposes its strict rule on what may be used as admitted prior art because it is too easy to use only the parts of attempted “prior art” that are favorable to forming the rejection, while omitting or discounting the unfavorable parts. The rejection found in the Office Action of July 20, 2006, seeks to rely on just a portion of the Background of the Specification, not the entire Background. (Office Action, page 4, lines 2-3: “The admission does not include the claimed heat treating steps...”) But in fact the Specification does specify heat treating steps in para. [0003] different from what the Examiner wishes to select to support the rejection. The entire Background at para. [0002]-[0005] gives the full details of, and explains why the approach discussed in, para. [0002] is not satisfactory. Thus, the entirety of the Background teaches away from the present approach. The reliance on only the favorable portion of a reference while ignoring the unfavorable portions is a per se hindsight reconstruction that is not permitted by the case authority and the MPEP.

The material asserted to be “admitted prior art” discusses a heat treatment contrary to that recited in the present claims, compare para. [0003] of the present Specification with the present claims. It is a well-established principle of law that a prima facie case of obviousness may not properly be based on a reference which teaches away from the present invention as recited in the claims.

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the

path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. In re Sponnoble, 160 USPQ 237, 244 (CCPA 1969)...As “a useful general rule,”...“a reference that ‘teaches away’ can not create a prima facie case of obviousness.” In re Gurley, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994).”

As plainly stated, the “admitted prior art” cannot be used to create a prima facie case of obviousness.

Accordingly, for both of the reasons discussed above, the “admitted prior art [0002]” is not properly applied as prior art under 35 USC 103 and must be withdrawn. If the “admitted prior art [0002]” is not withdrawn, Applicant asks that the Examiner indicate with specificity the legal authority in the MPEP for using it as prior art, and respond to the discussion of the requirements of MPEP 2129 II as discussed above.

“Well known”

The explanation of the rejection relies on “well known” prior art. See for example Office Action, page 4, line 16. Applicant traverses this use of “well known” prior art, to the extent that it is intended to suggest any prior art beyond that which is specifically disclosed and taught in the references. “Well known” is not a class of statutory prior art recognized in 35 USC 102 or 35 USC 103. Here, the matters asserted to be “well known” are not, in this context, except to the extent that they are stated in the properly applied statutory prior art references. Applicant requests that, if the rejection is maintained, the Examiner clarify whether the “well known” is meant to apply to anything beyond the explicit disclosure and teachings of the applied references and, if so, to apply a statutory prior art reference and set forth a rejection that incorporates the statutory prior art. MPEP 2144.03. If the asserted limitations are in fact well known, it should present no problem to cite and apply an appropriate statutory prior art reference.

The Response to Argument does not appear to address this issue.

The Sec. 103 rejections

In this section, it will be assumed arguendo that all of the applied references are valid references. In fact, two are not, as discussed above.

Nevertheless, the references still do not establish a sec. 103 ground of rejection.

MPEP 2142, under ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS, provides: "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. [citations omitted]. See MPEP para 2143-2143.03 for decisions pertinent to each of these criteria."

The first of the requirements of MPEP 2142 is that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings." The present rejection is a sec. 103 combination rejection. To reach a proper teaching of an article or process through a combination of references, there must be stated an objective motivation to combine the teachings of the references, not a hindsight rationalization in light of the disclosure of the specification being examined. MPEP 2142, 2143 and 2143.01. See also, for example, In re Fine, 5 USPQ2d 1596, 1598 (at headnote 1) (Fed.Cir. 1988), In re Laskowski, 10 USPQ2d 1397, 1398 (Fed.Cir. 1989), W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 311-313 (Fed. Cir., 1983), and Ex parte Levengood, 28 USPQ2d 1300 (Board of Appeals and Interferences, 1993); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351 (Board of Appeals 1984). As stated in In re Fine at 5 USPQ2d 1598:

"The PTO has the burden under section 103 to establish a prima facie case of obviousness. [citation omitted] It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."

And, at 5 USPQ2d 1600:

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Following this authority, the MPEP states that the examiner must provide such an objective basis for combining the teachings of the applied prior art. In constructing such rejections, MPEP 2143.01 provides specific instructions as to what must be shown in order to extract specific teachings from the individual references:

“Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).”

* * * * *

“The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).”

* * * * *

“A statement that modifications of the prior art to meet the claimed invention would have been ‘well within the ordinary skill of the art at the time the claimed invention was made’ because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).”

Here, there is set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and selecting the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure.

In this case, there is an attempt to combine five different references having different and inconsistent teachings. The “admitted prior art,” when taken in its entirety, teaches that “In the current best practice to achieve the optimal combination of strength and other properties, after forging the thick-section Ti64 articles are typically heat treated at a

temperature of 1750°F, followed by an anneal heat treatment at 1300°F.” The Timet reference specifies a different heat treatment. Woodfield specifies yet a different heat treatment at para. [0033]. ASM teaches yet a different heat treatment. There is no basis in the references themselves for resolving the differences in these heat treatments. Specifically, none of the references indicate that any one of the approaches is to be selected over the others. If the position of the explanation of the rejection is that one particular heat treatment may be picked in preference to the others, then some objective basis for that selection in the prior art itself must be set forth. The present explanation is based on “the motivation being implicit in the knowledge of one of ordinary skill in the art as evidenced by the ASM Handbook.” The ASM Handbook reference is seven densely packed pages of information, and Applicant can find nothing in those pages that would support the substitution of one heat treatment for another heat treatment specified in the “admitted prior art (0002).” Beier is applied for a teaching of quenching at para. [0010], but this discussion relates to the heat treatment of 6000-series aluminum alloys discussed at para. [0008]-[0009]. While Beier references generally to other alloys at para. [0007], Applicant finds nothing to suggest that the following discussion of specific heat treatment with respect to 6000-series aluminum alloys has anything to do with titanium alloys, much less anything to do with Ti64 alloys.

If the rejection is maintained, Applicant asks that the Examiner set forth the objective basis found in the references themselves for combining the teachings of the references, and for adopting only the helpful teachings of each reference and disregarding the unhelpful teachings of the reference. Applicant also asks that the Examiner indicate exactly what portion of ASM is relied upon. Thus, as it stands now, the invention as a whole is not *prima facie* obvious over the combined teachings of the prior art.

The second of the requirements of MPEP 2142 is an expectation of success. This requirement has not been addressed in the explanation of the rejection, and in any event more than Examiner’s argument is required here.

As stated in MPEP 2142, “The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. [citations omitted].”

The third of the requirements is that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.” In this regard, the following principle of law applies to all sec. 103 rejections. MPEP 2143.03 provides “To establish

prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).” [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art references clearly do not arguably teach some limitations of the claims in the present context.

Claim 1 recites in part:

“providing a workpiece made of a titanium alloy having a nominal composition in weight percent of 6 percent aluminum, 4 percent vanadium, 0.2 percent oxygen, balance titanium and impurities, wherein the titanium alloy has a beta-transus temperature; thereafter

forging the workpiece to make a forged gas turbine engine component, wherein the forged gas turbine engine component has a thick portion thereof with a section thickness greater than 2-1/4 inches; thereafter

heating treating the forged gas turbine engine component by

solution heat treating the forged gas turbine engine component at a temperature of from about 50°F to about 75°F below the beta-transus temperature, thereafter

water quenching the gas turbine engine component to room temperature, and thereafter

aging the gas turbine engine component at a temperature of from about 900°F to about 1000°F; and thereafter

final machining the forged gas turbine engine component.”

None of the reference teach this combination of steps in a coherent way. “Admitted prior art” teaches a completely different heat treatment at para. [0003]. No reason has been presented to select only a limited portion of the asserted reference and ignore its teaching of the heat treatment. Woodfield teaches a different heat treatment, and Beier teaches processing for aluminum alloys, not titanium alloys and specifically not Ti64.

In the last sentence on page 7 of the Final Office Action, the Examiner requests “Evidence of the criticality of this particular titanium alloy with this process...” A showing of criticality is not pertinent yet. What is required and is pertinent is a prima facie showing that the references teach the claimed limitations. There is no such showing as of this time. When such a prima facie showing is made, Applicant will take whatever further actions are required.

None of the references teaches the limitation “the forged gas turbine engine component has a thick portion thereof with a section thickness greater than 2-1/4 inches.” The majority of the Specification addresses the critical nature of this problem of heat treating thick forgings, yet not one of the references remotely suggests the presently claimed processing for such thick-section forgings.

Applicant has addressed the distinction of the present approach from the teachings of some of the prior art references applied here. As stated in the Specification,

“[0029] It has been known in the art to heat treat thin pieces of Ti64 material, less than about 2 inches thick, by solution heat treating at a temperature of from about 50°F to about 75°F below the beta-transus temperature, thereafter water quenching to a temperature of less than about 850°F, and thereafter aging at a temperature of from about 900°F to about 1000°F. However, the benefits could not be extended to thicknesses greater than about 2 inches. In the present approach, it is recognized that a harder zone near the surface of the article and a softer zone in the center of the article is beneficial to the resulting properties. This approach permits the Ti64 alloy to be used to higher performance levels, and avoids the need to utilize more-expensive alloys to make thick-section articles.”

Applicant incorporates the same points regarding claim 10. Additionally, claim 10 recites in part: “the thick portion has a 0.2 percent yield strength of from about 120 ksi to about 140 ksi at its centerline, and a 0.2 percent yield strength of from about 160 ksi to about 175 ksi at a location about 1/2 inch below a surface thereof.” The explanation of the rejection (page 6, lines 10-14 of the Office Action of July 20, 2006) asserts that these properties are somehow “inherent” in the collection of five references.

MPEP 2112-2113 sets forth the law on inherency. Inherency is not properly presented unless there is good evidence to suggest that the asserted property or characteristic is necessarily present in the teachings of the prior art reference. No

inherency basis is set forth for collections of teachings of unrelated references. The concept of inherency is not provided as a way to fill in the gaps in missing disclosure or teachings based upon speculation, unless the asserted property or characteristic may be shown to be necessarily present by objective evidence. Instead, “inherency” is used when every aspect of the disclosure of a reference and the claimed subject matter are otherwise exactly the same, then it may be inferred that some property or characteristic further recited in the claim must necessarily be present in the art reference. [emphasis added] MPEP 2112 provides “The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

Nothing in the MPEP suggests that the principle of “inherency” may be applied to an assemblage of teachings from five unrelated references, where it is clear that such a “thing described in the reference” has never been previously described or physically existed. If the rejection of claim 10 and its dependent claims is maintained, Applicant asks that the Examiner state with specificity which portion of the MPEP permits such an “inherency” rejection as set forth for claim 10.

The claims depending from claims 1 and 10 are allowable because they depend from these parent claims, and because they have additional allowable limitations.

Regarding newly rejected claims 21-22, the Examiner’s unsupported speculation of what “would be expected” (Final Office Action, page 3, last two lines on page) is not prior art.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Ground 2. Claims 8-9 and 17-18 are rejected under 35 USC 103 over admitted prior art in view of Beier U.S. Pub. 2001/0048019, Woodfield U.S. Pub. 2004/0089380, the ASM Handbook, and the website of Titanium Metals Corporation found at www.timet.com/timetal6-4frame.html, and further in view of Bewlay U.S. Patent 6,370,956.

Applicant incorporates the prior discussion related to the Ground 1 rejection. The “admitted prior art” and the website do not qualify as “prior art.”

Claims 8-9 depend from claim 1 and are allowable over the combination of “admitted prior art in view of Beier U.S. Pub. 2001/0048019, Woodfield U.S. Pub. 2004/0089380, the ASM Handbook, and the website of Titanium Metals Corporation found at www.timet.com/timetal6-4frame.html” as discussed above in relation to the Ground 1 rejection. Bewlay adds nothing in this regard because Bewlay deals with different alloys and for other reasons.

Claims 17-18 depend from claim 10 and are allowable over the combination of “admitted prior art in view of Beier U.S. Pub. 2001/0048019, Woodfield U.S. Pub. 2004/0089380, the ASM Handbook, and the website of Titanium Metals Corporation found at www.timet.com/timetal6-4frame.html” as discussed above in relation to the Ground 1 rejection. Bewlay adds nothing in this regard because Bewlay deals with different alloys and for other reasons.

Additionally, each of these claims has limitations not taught by the combination of six unrelated references.

Each of claims 8 and 17 recites in part:

“an additional step, after the step of forging the workpiece [made of the Ti64-type alloy specified in the parent claim] and before the step of heat treating, of ultrasonically inspecting the forged gas turbine engine component.”

Bewlay teaches, at col. 5, lines 60-67, ultrasonic inspecting a material that is made of a completely different alloy type. As stated in Table 5 of ASM, Ti6242 is an alpha or near-alpha titanium alloy, and Ti64 is an alpha-beta titanium alloy. Further, there is no indication in Bewlay that the ultrasonic inspection taught at col. 5, lines 60-67 is performed “after the step of forging the workpiece and before the step of heat treating” as recited. Applicant has studied the portion of Bewlay following col. 5, lines 60-67 and cannot find that the specimens selected for ultrasonic inspection as described at col. 5, lines 60-67 were ever subsequently heat treated, and specifically not heat treated in any manner as recited in the respective parent claims. If the rejection is maintained, Applicant asks that the Examiner point out where there is a teaching that the specimens ultrasonic tested at col. 5, lines 60-67 were ever subsequently heat treated by the steps recited in the respective parent claims of claims 8 and 17. A teaching of such a subsequent heat treatment is required to satisfy that portion of the recitation.

Each of claims 9 and 18 recites in part:

“an additional step, after the step of heat treating and before the step of final machining, of
ultrasonically inspecting the forged gas turbine engine component.”

Bewlay does not arguably have such a teaching, for any alloy or for any heat treatment, much less the alloy and heat treatments recited in the parents of claims 9 and 18. Nothing in the explanation of the rejection suggests that Bewlay has any such teaching. The explanation of the rejection lumps claims 9 and 18 with claims 8 and 17, but there is no basis for this.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Applicant submits that the application is in condition for allowance, and requests such allowance.

CONCLUSION

For at least the reasons set forth above, Applicant respectfully requests reconsideration of the Application and withdrawal of all outstanding rejections. Applicant requests allowance of all pending claims in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant's undersigned representative.

This Response has been filed within two (2) months of the mailing date of the Office Action and it is believed that no fees are due with the filing of this paper. In the event that Applicant is mistaken in these calculations, the Commissioner is hereby authorized to deduct any fees determined by the Patent Office to be due from the undersigned's Deposit Account No. 50-1059.

Dated: February 26, 2007

Respectfully submitted,
McNees Wallace & Nurick LLC

Phone: (717) 237-5218
Fax: (717) 237-5300

/Shawn K. Leppo/
Shawn K. Leppo
Reg. No. 50,311
100 Pine Street
P.O. Box 1166
Harrisburg, PA 17108-1166
Attorney for Applicant